National Institute of Environmental Health Sciences

Climatic potential for tourism in the Black Forest, Germany--winter season

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Abstract:

Climate change, whether natural or human-caused, will have an impact on human life, including recreation and tourism among other things. In this study, methods from biometeorology and tourism climatology are used to assess the effect of a changed climate on tourism and recreation in particular. The study area is the Black Forest mountainous region of south-west Germany, which is well known for its tourist and recreational assets. Climate model projections for the 2021-2050 period based on REMO-UBA simulations with a high spatial resolution of 10 km are compared to a 30-year reference period (1971-2000) using the IPCC emission scenarios A1B and B1. The results show that the mean winter air temperature will increase by up to 1.8 degrees C, which is the most pronounced warming compared to the other seasons. The annual precipitation amount will increase marginally by 5% in the A1B scenario and 10% in the B1 scenario. Winter precipitation contributes about 10% (A1B) and 30% (B1) to variations in annual precipitation. Although the results show that winter precipitation will increase slightly, snow days affecting skiing will be reduced on average by approximately 40% due to regional warming. Cold stress will be reduced on average by up to 25%. The result is that the thermal environment will be advanced, and warmer winters are likely to lead to an upward altitudinal shift of ski resorts and winter sport activities, thus displacing land-use currently dedicated to nature conservation.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1, SRES B1

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Precipitation, Temperature, Other Exposure

Temperature: Extreme Cold, Fluctuations

Other Exposure: Cloudy days

Geographic Feature:

resource focuses on specific type of geography

Mountain

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Germany

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction, Other Projection Model/Methodology

Other Projection Model/Methodology: Tourism

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content